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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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FISH & RICHARDSON, PC
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
NGUYEN, PHU K	
ART UNIT	**PAPER NUMBER**
2628	

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/496,137	SCHKOLNE ET AL.	
	Examiner	Art Unit	
	Phu K. Nguyen	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21,23-26,29,30 and 32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *2,3,5-7 and 20* is/are allowed.

6)☒ Claim(s) *4,10-14 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

PHU K. NGUYEN
PRIMARY EXAMINER
GROUP 2300

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/2/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 18-19, 26, 29-30 are rejected under 35 U.S.C. 102(a) as being anticipated by NISHINO et al. (3D Object Modeling Using Spatial and Pictographic Gestures).

As per claim 1, Nishino teaches the claimed "method of producing a shape, comprising: "using a virtual reality environment in which positions of a user's hand are tracked" (Nishino, the control of the shape representations is performed by specific hand shapes and gestures; page 53, column 2, section 4.2 Primitive Shape Creation); and "forming a three-dimensional modeled surface by adding shapes defined by hand movements" (Nishino, page 53, column 2, adding primitives to form rough shape and deform the rough shape to make it finer one); "at each of a plurality of intervals" (Nishino's different stages at different in times – primitive blending, rough shape, finer shape - of forming complex object; page 53, column 1); "wherein an added shape comprises a surface region formed from sampled positions of a hand movement in the virtual reality environment during at least one of said intervals" (Nishino, object's shape is defined by the user's gestures or hand's positions; page 55, column 1, lines 19-25).

Applicant's arguments filed April 28, 2006 have been fully considered but they are not persuasive.

Applicant argues that the cited reference fails to teach "multiple individual shapes are defined by hand movements" which is not correct because Nishino's primitive shapes are formed by hand shapes and gestures (page 53, column 2, section 4.2 Primitive Shape Creation). Applicant's claimed language "shapes" is not specifically distinct from Nishino's primitives that are created through hand gestures.

Applicant does not provide in his arguments any specific meaning of "intervals." In view of Applicant's disclosure, since a complex shape is formed through a sequence of adding shapes, "intervals" is interpreted as "time intervals" (at different in times) or stages of forming the complex object and read on the teaching of Nishino. In case Applicant does not agree with Examiner's interpretation of term "intervals" in view of his disclosure, Applicant should provide in his argument a specific meaning of "intervals" in view of his original disclosure.

As per claim 18, Nishino teaches the claimed "method of producing a shape, comprising: "tracking a position of a user's hand" (Nishino, page 55, column 1, lines 19-25); and "forming a three-dimensional modeled surface based on said position of said user's hand" (Nishino, page 56, column 2, lines 3-9). Nishino's hand shape and its position data used to create the object (page 55, column 1, lines 21-28) clearly satisfy the claimed "3d-strokes of shape defined by hand movements." Given Nishino's sequential performance of shaping operations (e.g., page 54, figure 6-b), those operations are performed at different times because the order arrangement of

operations in time intervals to improve the realistic procedure of shaping an object and enhances the designing in a natural and intuitive manner. During telephone's interview on April 18, 2006, in response to Examiner's question of "7 degrees of hand's freedom" in Applicant's original Disclosure, Applicant's representative, Mr. Hunter indicates the natural movement of a human hand. Given Nishino's gestures of natural and intuitive manipulations of a human hand (page 56, column 1, lines 18-34, hand posture, hand position, hand orientation, ...), it teaches "at least 7 of the hand's degrees of freedom, said degrees of freedom including the hand's *position and* orientation in space, along with degrees of freedom that are affected by the hand's posture" because in view of Applicant's original disclosure, the claimed "at least 7 of hand's degrees of freedom" describes all the natural movements of a human hand as taught in Nishino's natural gestures (Nishino, hand position, orientation, movement patterns; figure 9). During the interview, Applicant is also requested to clarify the claimed "3d-stroke" to distinct from Nishino's samples of hand movement (Nishino, the 3d-stroke is defined as the hand movement is sampled through the CyberGlove and Polhemus tracker, page 55, column 1, section 5.2, Software Architecture); however, the current claim 26 does not provide any details of 3d-stroke to make it distinct from Nishino's samples of hand movement.

As per claim 19, Nishino teaches the claimed "method of producing a shape, comprising: "tracking a position of a user's hand" (Nishino, page 55, column 1, lines 19-25); "forming a three-dimensional modeled surface based on said position of said user's hand" (Nishino, page 56, column 2, lines 3-9); "said forming comprises using the

hand to create 3d-Strokes of shape" (Nishino, page 55, column 1, lines 37-39, the user shapes the 3D object with the deform posture in which the curvature 3d surface of the object is a tangent to the hand); "each 3d-stroke of shape comprising a plurality of points created in 3d-space by motion of the hand, the plurality of points defining the 3d-stroke of shape" (Nishino, the 3d-stroke is defined as the hand movement is sampled through the CyberGlove and Polhemus tracker, page 55, column 1, section 5.2, Software Architecture); Nishino's hand shape and its position data used to create the object (page 55, column 1, lines 21-28) clearly satisfy the claimed "3d-strokes of shape defined by hand movements;" "merging samples from one hand position to an existing shape" (Nishino, the user uses the blend posture to merge the primitive shape represented by its samples to the existing shape). Given Nishino sequential performance of shaping operations (e.g., page 54, figure 6-b), the operations are performed at each of a plurality of time intervals because the order arrangement of operations in time intervals to improve the realistic procedure of shaping an object and enhances the designing in a natural and intuitive manner.

As per claim 26, Nishino teaches the claimed "method of producing a shape, comprising: "a hand tracking element, which tracks three dimensional positions and hand shapes of an operator's hand in a virtual reality environment in which positions of

a user's hand are tracked" (Nishino, page 55, column 1, lines 19-25); and "forming a three-dimensional modeled surface by adding shapes defined by hand movements" (Nishino, page 56, column 2, lines 3-9). Given Nishino's sequential performance of shaping operations (e.g., page 54, figure 6-b), the operations are performed at each of a plurality of intervals because the order arrangement of operations in time intervals to improve the realistic procedure of shaping an object and enhances the designing in a natural and intuitive manner. It is noted that Nishino's shapes are not only primitive or rough shapes but also can be the complex blended shapes (page 54, column 1, "a blended shape is used as a primitive for another blending operations"); therefore, Nishino's blended shape is equivalent to the claimed "shapes" whose surface is defined by hand movements (Nishino, deformation stages in figure 11(a), page 57). Thus, Nishino's hand shape and its position data used to create the object (page 55, column 1, lines 21-28) clearly satisfy the claimed "3d-strokes of shape defined by hand movements." Furthermore, in computer display arts, the objects are displayed as mesh in which the equations are used to describe the form of the mesh. Nishino clearly teaches the mesh with the wire frame model (figure 13) to be mapped by texture (figure 3) or more specific, defining the object with a shape formed by polygons (page 56, column 2, lines 14-20).

As per claim 29, Nishino teaches the claimed "method of drawing on a computer", comprising: "displaying a first shape on the computer" (Nishino, page 56, column 2, lines 3-9); "using the hand to define a new shape, to be added to said *first* shape" (Nishino, the primitive shapes). Applicant argues that Nishino does not teach "merging samples into an existing shape" which is not correct because of the teaching in blending the primitives in figures 3 (page 53), 5 (page 54) or 11 (page 57).

It is noted that Nishino does not explicitly teach "using said new shape to apply deformations to said first shape and displaying said first shape as deformed by said new shape". Given Nishino's blending shapes, an existing shape is deformed at its intersection with the newly added shape; for example, an original cube is no longer a "perfect" cube or deformed when blending to a sphere on its surface (Nishino's figure 5.e)

Claim 30 adds into claim 29 "*wherein* a portion of the first shape moves toward the hand" which Nishino teaches in the examples of 3D object modeling process of the teapot (figure 11-b) in which the shapes are blended, manipulated, and displayed.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8, 15-17, 21, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino in view of BRODY et al. (Body language user interface, BLUI).

Applicant argues that Brody does not appear to be a proper reference because the date given on the face of Brody is 2005 that is not correct. In Information Disclosure Statement submitted in September 12, 2005, Applicant indicates that this reference was published on the year of 1999. Anyway, a different Brody reference is provided with publication date on January 1998.

Claim 8 adds into claim 1 "a first hand position which defines a starting position and a second hand position which defines a stopping of drawing" which Nishino does not explicitly teach. However, Brody teaches that such start posture is well known in a "3D gestural interface" system such as Nishino (Brody, draw and quit gestures, page 401). It would have been obvious, in view of the teaching of Brody, to configure Nishino's system as claimed because the Start and Quit gesture signals the system to begin and stop to sample the hand's position to interpret user's commands (Brody, page 401; Nishino, page 55, column 1, lines 19-25).

Claim 9 adds into claim 1 "a hand position which forms an eraser tool" which Nishino does not explicitly teach. However, Brody teaches that such eraser posture is

well known in a "3D gestural interface" system such as Nishino (Brody, undo gesture, page 401). It would have been obvious, in view of the teaching of Brody, to configure Nishino's system as claimed because the Start gesture signals the system to undo the previous action of user (Brody, page 401; Nishino, page 55, column 1, lines 19-25).

As per claim 15, Nishino teaches the claimed "method of producing a shape, comprising: "tracking a position of a user's hand" (Nishino, page 55, column 1, lines 19-25); and "forming a three-dimensional modeled surface by finding hand positions" (Nishino, page 56, column 2, lines 3-9), storing those positions (Nishino, figure 9, store, distributed buffer), and "forming the surface using said positions to define points on the actual surface that is formed" (Nishino, page 55, column 1, lines 31-33, the hand position using to move, scale and rotate the object defines points on actual formed surface). Nishino's hand shape and its position data used to create the object (page 55, column 1, lines 21-28) clearly satisfy the claimed ""the hand position at different times is used to form actual points on the surface." Given Nishino sequential performance of shaping operations (e.g., page 54, figure 6-b), the operations are performed at different times because the order arrangement of operations in time intervals to improve the realistic procedure of shaping an object and enhances the designing in a natural and intuitive manner. It is noted that Nishino does not teach "a first hand posture comprises a start to track posture". However, Brody teaches that such start posture is well known in a "3D gestural interface" system such as Nishino (Brody, Set the Draw flag, page 401). It would have been obvious, in view of the teaching of Brody, to configure

Nishino's system as claimed because the Start gesture signals the system to sample the hand's position to interpret user's commands (Brody, page 401 – Gesture Recognition; Nishino, page 55, column 1, lines 19-25).

Claim 16 adds into claim 15 "wherein said forming comprises using the hand to create 3d-strokes of shape" which Nishino teaches in page 55, column 1, lines 37-41.

Nishono's hand movements in 3D space in process of forming the shape (figure 3, hand's movements illustrate the tapering, twisting) is equivalent to the claimed "using hand to create 3D strokes of shape."

Claim 17 adds into claim 16 "said using comprises using the bend of the hand to define the curvature of 3d-strokes" which Nishino teaches in the deform posture (Nishino, page 55, column 1, lines 37-39, the user shapes the 3D object with the deform posture in which the curvature 3d surface of the object is a tangent to the hand).

Nishono's hand movements in 3D space in process of forming the curvature shape (figure 6, hand's movements illustrate the curvature bending) is equivalent to the claimed "using hand to create 3D stroke curvature."

Claims 21 adds into claim 15 "using hand postures to switch between different modes of operation" which Nishino does not explicitly teach. However, Brody teaches that such start posture is well known in a "3D gestural interface" system such as Nishino (Brody, Enable the affine transformations, page 401).

It would have been obvious, in view of the teaching of Brody, to configure Nishino's system as claimed because the mode switching gesture signals the system to allow user's different modes (Brody, page 401 – Gesture Recognition; Nishino, page 55, column 1, lines 19-25).

Claim 23 adds into claim 15 "a stop track posture" which Nishino does not teach. However, Brody teaches that such start posture is well known in a "3D gestural interface" system such as Nishino (Brody, quit gesture, page 401). It would have been obvious, in view of the teaching of Brody, to configure Nishino's system as claimed because the Stop gesture signals the system to stop to sample the hand's position to interpret user's commands (Brody, page 401 – Gestures; Nishino, page 55, column 1, lines 19-25).

Claim 24 adds into claim 15 "displaying different tools at the hand's position based on different postures" which Nishino teaches in page 56, column 1, lines 18-34, figure 10-b for examples (or Brody, point, pick, grab; page 401).

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over NISHINO et al. (3D Object Modeling Using Spatial and Pictographic Gestures).

Claim 32 adds into claim 26 "a mesh of triangles" which Nishino does not explicitly teach. However, it would have been obvious that the shape of the polygons in Nishino's mesh (page 56, column 2) is triangle because it would improve the speed of forming polygonal mesh and the triangular mesh had been widely used to form a 3D object in the art at the time the invention was made (official notice).

Claims 4, 10-14, 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 2-3, 5-7, and 20 are allowed.

Due to new ground of the rejection, this action has been made NON-FINAL.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu K. Nguyen whose telephone number is (571) 272 7645. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (571) 272 7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Phu Nguyen
July 19, 2006

PHU K. NGUYEN
PRIMARY EXAMINER
GROUP 2300